MP. INST. ENT.
— LIBRARY —
- 1 APR 1935

The
Florida Entomologist

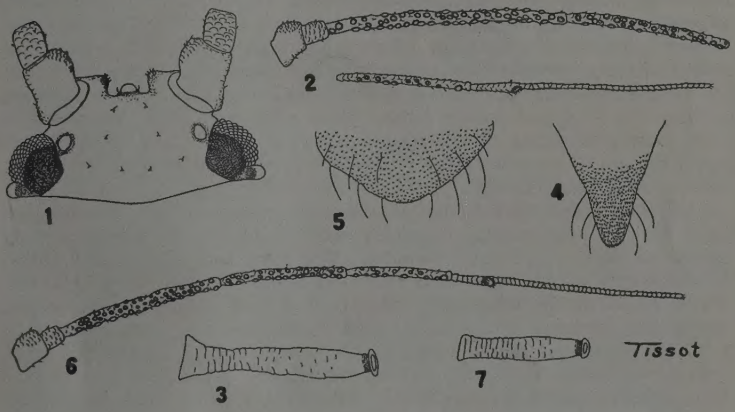
Official Organ of the Florida Entomological Society

VOL. XVIII MARCH, 1935 NO. 4

A NEW MYZUS FROM FLORIDA*

A. N. TISSOT

From loquat, apple, and hawthorn has been taken a brown aphid belonging to the genus Myzus. As this insect is apparently new to science, the opportunity is taken in this paper to describe the known forms of the species.



Explanation of Plate III

Myzus eriobotryae n. sp.

Figs. 1-5.—Alate viviparous female: 1, head; 2, antenna; 3, cornicle; 4, cauda; 5, anal plate.

Figs. 6-7.—Alate male: 6, antenna; 7, cornicle.

MYZUS ERIOBOTRYAE new species

ALATE VIVIPAROUS FEMALE. (Plate III, figs. 1-5). Prevailing color of body and appendages, brown. Length, 2.08 mm. Head dark brown. Width nearly twice as great as the length. Antennal tubercles short, but rather strongly converging. Front of head and antennal tubercles with a few short, thick, hyaline, spines. Width through the compound eyes, .476 mm. Eyes reddish-brown, large, with very prominent ocular tubercles. Ocelli

* Contribution from Department of Entomology, Florida Agricultural Experiment Station. Published March 8, 1935.

large, bordered with very dark brown. Antennae six-segmented, somewhat longer than the body, very tuberculate. First two segments concolorous with the head, remaining segments very dark brown, almost black. First segment strongly gibbous on the inner margin, much wider than the second. Surface of the first three segments without imbrications, fourth and fifth faintly imbricated and the sixth distinctly imbricated. The third, fourth, and fifth segments with scattered, tuberculate sensoria, oval or circular in outline and varying considerably in size. The third segment with 50-65 sensoria, the fourth with 20-30 sensoria, and the fifth with 10-20 sensoria, the sixth with a group of one large and five or six small sensoria at the base of the unguis. Length of the antennal segments as follows: I, .095 mm., II, .075 mm., III, .775 mm., IV, .503 mm., V, .422 mm., VI, base, .150 mm., unguis, .626 mm. Rostrum brown, black-tipped, reaching to second coxae.

Prothorax reddish-brown, the other two thoracic segments yellowish-brown with the dorsal lobes dark brown. The wing insertions yellowish. Anterior margin of prothorax about equal in width with the head, posterior somewhat wider. Lateral margins without tubercles. Wings hyaline, stigma and veins brown, the anal and basal portion of the cubitus narrowly bordered with brown shading. Fore wing with radial sector long and rather sharply curved. The media twice-branched, the distance between the second fork and the margin of the wing about equal to the distance between the first and second forks. Hind wing with two oblique veins. Legs brown, the bases of the femora and the mid-portions of the tibiae light; the apical portion of the femora, the two extremities of the tibiae, and the tarsi, dark brown.

Abdomen a dull dark brown, the embryos within showing through the body wall as light areas. Cornicles yellowish-brown, the apical portion somewhat darker than the remainder. The basal half narrow, the apical half distinctly swollen, somewhat narrowed before the apex which is flared. The surface faintly imbricated, the narrowed portion having a somewhat wrinkled appearance. Length, .394 mm. Cauda and anal plate concolorous with the abdomen. Cauda broad at the base, tapering toward the apex, with a very slight constriction above the middle. Each side with two or three slightly curved, hyaline hairs. Length, .163 mm. Anal plate large, the sides nearly straight and the posterior margin rounded, with several curved hyaline hairs. The surface of the cauda and anal plate covered with short, thick, spine-like processes.

ALATE MALE. (Plate III, figs. 6-7). General color of body and appendages brown. Smaller and more slender than the alate female. Length, 2.00 mm. Head dark brown, anterior margin nearly black. Antennal tubercles short, sharply converging. Width of head through the compound eyes, .490 mm. Eyes reddish-brown, very large, occupying the whole sides of the head, ocular tubercles large. Ocelli prominent, bordered with very dark brown. Antennae six-segmented, about equal in length with the body. The first segment concolorous with the head, the remaining segments very dark brown or black. The first segment somewhat gibbous on the inner margin, the surface faintly imbricated. The second segment with very definite curved imbrications. The third and fourth segments faintly imbricated, the fifth and sixth definitely so. The sensoria are scattered over most of the third, fourth, and fifth segments as in the alate female, but they

are smaller and somewhat less tuberculate than in that form. Third segment with 50-60 sensoria, fourth with 25-30, and the fifth with 10-15 sensoria. Sixth segment with one large and six small sensoria at the base of the unguis. Length of antennal segments as follows: I, .082 mm., II, .068 mm., III, .530 mm., IV, .394 mm., V, .326 mm., VI, base, .122 mm., unguis, .612 mm. Rostrum brown, with apex black, reaching to third coxae.

Thorax reddish-brown, with the dorsal lobes dark brown. Prothorax but little wider than the head, the sides nearly parallel. Wings hyaline, the stigma and veins dark brown. Fore wing with the radial sector sharply curved at the base, the media twice-branched, the distance between the second fork and the margin of the wing about equal to the distance between the first and second forks. Hind wing with two oblique veins. Legs brown; the apical two-thirds of the femora, both extremities of the tibiae, and the tarsi, dark brown. The inner posterior margin of the femora sharply serrated.

Abdomen brown, somewhat lighter than in the female. Cornicles light brown from base to apex. Shorter and thicker than in the alate female. Somewhat swollen above the middle and constricted before the apex which is flared. Length, .272 mm. Cauda and anal plate brown, considerably darker than the abdomen. Cauda shorter, thicker, and more conical than in the female. Anal plate broadly rounded. Both these structures with curved hyaline hairs, and their surface covered with spine-like processes as in the alate female.

TYPE LOCALITY: Gainesville, Florida.

TYPES: Holotype, alate vivaparous female taken from *Eriobotrya japonica,* Loquat, Dec. 4, 1928 (F 428-28). Allotype, male, same data as the holotype. The above types deposited in the U. S. National Museum Collection, Cat. No. 44301. Paratypes in the collection of the Entomology Department, Florida Agricultural Experiment Station and in that of the author. Types selected from a series of forty-one alate females and two males. Type material collected by the author.

NOTES: This aphid has been found on apple and hawthorn in addition to loquat. A single specimen was taken from within the funnel of a pitcher plant in western Florida. The majority of the specimens were taken from loquat, all being alate females except for two males. On apple there were taken a few immature oviparous females in addition to the alate viviparous females. All specimens from hawthorn were alate females. This species may be distinguished from other species of this genus found in Florida by the numerous, somewhat tuberculate antennal sensoria.

A study of ten alate females gave the following range in size: length, 2.08-2.40 mm., width of head across the eyes, .476-.517 mm., length of antennal segments, III, .626-.775 mm., IV, .408-

.571 mm., V, 3.354-.422 mm., VI, base, .122-.150 mm., unguis, .490-.626 mm., length of cornicle, .340-.422 mm.

RECORDS: *Eriobotrya japonica*, Loquat, Gainesville, Dec. 4, 1928 (F 428-28), Dec. 27, 1928 (F 443-28), Dec. 30, 1931 (F 842-31); *Pyrus malus*, Apple, Gainesville, Dec. 7, 1928 (F 430-28); *Crataegus uniflora*, Gainesville, Feb. 19, 1929 (F 475-29); within funnel of *Sarracenia flava*, Marianna, Apr. 13, 1930 (F 753-30), (L. W. Ziegler coll.).

WALNUT CATERPILLARS EATEN BY BLUEJAYS?

On a recent evening (Aug. 25, 1934), before dark, the writer observed a bluejay busily rubbing and belaboring something that he held in his beak against the horizontal top board of a lattice fence. It was surmised that he had a caterpillar from which he was endeavoring to remove the sparse whitish hair, preparatory to eating. The bird shortly swallowed the caterpillar. I further surmised that it was a specimen of the Walnut caterpillar (*Datana integerrima*) as several colonies of these were present in the few pecan trees growing in our yard.

The next morning I again observed a bluejay alighting on the same fence, this time undoubtedly with one of the caterpillars in question as it was plainly visible from the window. However, the bird flew away thus putting an end to this particular observation. Nevertheless, I had seen enough to satisfy me that these bluejays were consuming some of the caterpillars in question. But additional observations verified this.

Early in the evening of the same day, before dusk, I again noted a bluejay, this time belaboring a caterpillar on a small branch of one of the pecan trees. I observed the bird until he had swallowed three of the wormy tribe. I also noted that he hopped to the other side of the tree just above a large crotch, four or five feet away, to get the caterpillars. Investigation displayed a colony of these, that had come down to shed their skins, as the bird's source of supply. And to think that the bird had directed the writer to this!

A week later, this time early (7 a.m.) in the morning, a bluejay was again observed on the lattice fence eating a caterpillar. Soon there were two, to which two nearly matured young birds were soon added. In this instance they flew to the ground nearby for their supply of caterpillars, evidently finding some that had dropt or fallen from the tree.

Two hours later two birds were again observed on the fence and one on a branch, each preparing a caterpillar that they ate. Single birds would leave and return several times with a fresh caterpillar. In this instance, however, I failed to locate the colony of "worms".

Examination of the fence showed the presence of some of the whitish hairs that the birds had succeeded in removing from the caterpillars.

E. W. BERGER.

The
FLORIDA ENTOMOLOGIST
Official Organ of The Florida Entomological Society,
Gainesville, Florida.

VOL. XVIII MARCH, 1935 No. 4

J. R. WATSON.....Editor
E. W. BERGER.....*Associate Editor*
H. E. BRATLEY.....*Business Manager*

Issued once every three months. Free to all members of the Society.

Subscription price to non-members is $1.00 per year in advance; 35 cents per copy.

A NEW TABANUS (DIPTERA) FROM FLORIDA[1]

By G. B. FAIRCHILD

TABANUS CAYENSIS n. sp.

FEMALE. Length 9 mm., length of wing 7 mm., width of head 3 mm. Frons unusually broad, about three times as high as wide, parallel-sided, greyish pollinose. Basal frontal callus about as high as wide, rounded, chestnut brown, connected with the large, oval, median callus. Vertex bare and shiny, the shiny area extending downward on each side of the frons next the eyes, and joined mesially to the median callus. Subcallus greyish pollinose. Face and cheeks silvery grey pollinose with sparse white hairs. Palpi white with scattered black hairs, hardly swollen basally and with a rather blunt apex. Third antennal segment about four times as long as the greatest width, the annulate portion about as long as the basal; dorsal angle pronounced though blunt, placed about midway of the basal portion. First two and basal portion of the third antennal segment yellowish, annulate portion darker, the first two segments and apex of the dorsal angle with black hairs. Dorsum of thorax black with whitish grey pollinosity, giving it a steel grey appearance; usual lines obsolete. Antealar tubercle reddish. Scutellum and pleurae of the same color as the dorsum. Eyes bare, bronzy, with a single horizontal dark band (from relaxed specimen) similar to but broader than that found in *nigrovittatus* Macq. Abdomen with a broad dark median band, expanding to cover the fifth and succeeding segments. This band is overlaid by a narrower band of grey pollinosity. Sides of first to fourth segments yellowish, overlaid with sparse grey pollinosity. Posterior margins of all tergites narrowly yellowish, with scattered pale hairs. Ventrally, the abdomen is yellowish on the first few segments, becoming darker apically. The legs, except the proximal half of the fore tibiae, and the middle and hind femora, are blackish. The wings are faintly smoky, the veins narrowly edged with brown, the costal cell very distinctly brownish, and the large stigma conspicuously yellowish brown. There is no appendix on the third vein.

[1] Contribution from the Dept. of Entomology of the Fla. Ag. Exp. Sta.

HOLOTYPE, female, M. C. Z. No. 20134. Stock Island, near Key West, Monroe Co. Fla. VII-1-34.

PARATYPE, U. S. N. M. No. 50803. Big Pine Key, Monroe Co. Fla. VII-1-34.

This species seems nearest to *conterminus* Walker, from which it may be distinguished by its much smaller size, smoky wings, and the structure of the frons and antennae. From Hine's description, it would also seem rather close to his *fulvistriatus* from Mexico, except for the color.

EFFECT OF A FREEZE ON SOME CITRUS INSECTS

During the nights of December 12 and 13 Florida was swept by a cold wave of unprecedented severity for so early a date. A minimum temperature of 16° was recorded at Gainesville on the 12th, 23° at Lake Alfred on the 13th and 26° near Vero Beach, at which places most of the following notes were made. This afforded an opportunity to observe the effects of these temperatures upon certain citrus insects and mites under natural conditions.

Florida Red Scale (*Chrysomphalus aonidum*). Of all the insects observed this scale insect suffered the highest mortality. On the campus at Gainesville where 16° was recorded, the mortality was 98%. Of the 2% which survived all were on trees, such as camphor, which, because of their canopy of leaves or their situation near a building, doubtless were not exposed to as low a temperature as that recorded in the open.

At Vero Beach in a low place in a grove where the citrus trees were half defoliated by the cold no live scales were found on the grapefruit still clinging to the trees. On higher ground where there was little defoliation the mortality among these scales was about 75%. A thermometer situated in the same depression about a quarter of a mile away registered 26°.

The Purple Scale (*Lepidosaphes beckii*). Scale insects of this species from the same grapefruit on which the mortality of 100% of the Florida red scale was recorded, showed a mortality of about 80%. Those which escaped were in a protected situation such as under other scales. But about half of the eggs of this species escaped even where the scale insects themselves were killed. Under many females the eggs near the outside of the scale were killed while those in the middle of the mass escaped.

Cottony Cushion Scale (*Icerya purchasi*). On January 9 the writer and Dr. Berger visited a tung grove near Gainesville which had been infested with this scale. The adults and larvae on the tung trees had all been killed but the eggs had mostly survived and many had hatched and the old cottony masses were swarming with young scales. The Vedalia lady-beetles (*Rodolia cardinalis*) were present in all stages but chiefly as adults and pupae.

J. R. W. Watson

THYSANOPTERA OF THE GEENTON

(Continued from page 46)

Glyptothrips barythripoides n. sp.

FEMALE (Aparous). General body color uniform narcissus yellow (Dictionary of Color—Maers and Paul, Plate 10) with much red hypodermal pigment. Antennae shading to brown at tip. Tube darker, harvest yellow (Plate 12) tipped with blackish brown.

Head about 1.3 times as long as wide. Cheeks slightly arched, converging very slightly posteriorally. Dorsum deeply reticulated, ventral surface less deeply reticulated. Eyes small, occupying but little more than a sixth of the length and a third of the width of the head, protruding, showing about six facets in lateral outline. Ocelli large but colorless, situated far forward, posterior pair opposite middle of eyes; anterior directed forward. Bordered by dark red crescents. Postocular bristles, about as long as eyes, curved inward, blunt, thick and heavy but of the color of head and not conspicuous, situated far out on cheeks. Post ocellar bristles and a pair midway between the eyes and the posterior border small and inconspicuous. Mouth cone very broadly rounded, short, scarcely reaching the middle of the short prothorax.

Antennae about twice as long as head. Segments 1 and 2 concolorous with the head, 3 to 8 progressively shaded darker with brown, pedicels of 3-6 brownish yellow. Sense cones long and thick but colorless. Bristles darker, long, heavy blunt.

Prothorax but half as long as head and, including coxae, nearly three times as wide as long. Outer bristles on posterior angles heavy, curved, blunt, light colored; inner similar but smaller. Surface of thorax and abdomen reticulated but much more finely so than head.

Pterothorax about as wide as prothorax, sides nearly straight and parallel; anterior angles very sharp.

Abdomen thick and heavy; gray blotches in the middle of segments 3-8. Bristles short, thick, and curved except two pair on segment 9, which are slender, pointed and three-fourths and two-thirds respectively as long as tube. Tube very long and heavy, with prominent longitudinal grooves suggesting *Barythrips* or *Symphyothrips*.

Measurements (average of type and 4 paratypes): Total body length 1.4 mm.; head, length .20 mm., width .155 mm.; prothorax, length .10 mm., width, including coxae .28 mm.; mesothorax, width .28 mm.; abdomen, width .34 mm. Tube length .21 mm., width at base .08 mm., at apex .03 mm. Antennal segments, length (width) I, 41 (35); II, 48 (34); III, 61 (27); IV, 56 (29); V, 53 (26); VI, 46 (23); VII, 37 (19); VIII, 32 (12) microns. Total length .33 mm.

MALE. Very similar to female but smaller, especially the tube. Measurements of type. Total body length 1.19 mm.; head, length .17 mm., width .14 mm.; prothorax, length .095 mm., width including coxae .21 mm.; mesothorax, width .23 mm.; abdomen, width .26 mm.; tube, length .15 mm., width at base .065 mm., at apex .028 mm. Antennal segments, length (width) I, 37 (30); II, 40 (28); III, 52 (25); IV, 47 (26); V, 44 (23); VI, 42 (21); VII, 30 (18); VIII, 28 (10).

In shape of the antennal segments this species resembles very closely the last. The pedicel of the 3rd segment is very long

and slender and has a subbasal annulation suggesting that of the *tritici* group of *Frankliniella*. Its spines are much heavier and the tube strikingly different.

Described from 16 females and 5 males all from moulding leaves, Gainesville, Fla. (Nov. 3 & 17, 1929, & Jan. 19, 1930; Winter Park, Fla., May 3, 1934; Gulf Hammock, Fla., Feb. 6, 1932 (A. N. Tissot); Micanopy, Fla., Aug. 13, 1933; Petersburg, Va., Sept. 3, 1933 (J. W. Kea); Pearl River, Miss., Dec. 28, 1931 (Erdman West); Gatlinburg, Tenn., Aug. 15, 1932; decaying pine needles, Trenton, Fla., May 8, 1934 (A. N. Tissot).

The heavy tube, suggestive of Barythrips and Synthothrips differentiates this species from all others. The antennae are very similar to those of the preceding species.

Glyptothrips batesi n. sp.

FEMALE. Length about 1.0 mm. General color canary yellow (Maers & Paul, Dictionary of Color, Pl. II, L. 3) with much hypodermal pigment, purple by transmitted light; bright red by reflected. Thorax, antennal segment 3, and especially abdomen heavily shaded with brown; tube and antennal segments 4-8 Mandalay brown.

Measurements: (Average of 9 paratypes and type). Total body length from .86 mm. to 1.6 mm. (The variation in length is chiefly in the abdomen.) Head, length .17 mm., width .13 mm.; prothorax, length .12 mm., width (including coxae) .22 mm.; pterothorax, width .21 mm.; abdomen, greatest width .33 mm.; tube, length .11 mm., width at base .066 mm., at apex .031 mm. Antennal segments, length (width) I, 37 (36); II, 44 (31); III, 63 (28); IV, 56 (28); V, 54 (24); VI, 51 (23.8); VII, 40 (20); VIII, 38 (11) microns. Total length .38 mm.

Head about a third longer than wide; frons sharply angular, and extending well beyond the eyes, accuminate between the bases of the antennae. Cheeks strongly arched, sharply constricted behind the eyes. Dorsum faintly reticulated; cheeks more strongly. Postocular bristles stout and long but nearly colorless, extending well beyond the eyes, capitate. Two weak bristles between the eyes. Eyes small, showing from three to five large facets in lateral outline, bulging, almost black, pilose.

Mouth cone broadly rounded reaching about half way across prosternum. Antennae a little more than twice as long as the head; segment I concolorous with the head; II somewhat, and III considerably darker; 4-8 almost uniformly Mandalay brown, pedicels of IV and V lighter. Segment 8 pedicelled.

Prothorax, a third shorter than the head and (including coxae) nearly twice as wide as long. Long bristles with colorless capitate ends on anterior and posterior angles and along the lateral margin at about a fourth of the distance from the anterior margin. These bristles are slightly curved and all fully half as long as prothorax.

Pterothorax, considerably narrower than the prothorax, sides nearly straight and parallel. A single bristle near each lateral margin nearly

as long as those on prothorax. Legs concolorous with the head, tarsi a little lighter. Fore tarsus with a stout curved spine.

Abdomen usually short and heavy but sometimes rather long and slender. Darker than prothorax; in some specimens almost black. Bristles on segment 9 nearly as long as tube, a short, straight, thick bristle on each anterior angle of segment 1. Tube short and thick. Lighter in apical third. Terminal bristles short; none as long as tube.

WINGED FEMALE. Very similar to apterous female except in the presence of ocelli and wings. Ocelli situated far forward; posterior pair but little posterior to anterior margins of eyes; anterior on vertex between the bases of the antennae; margined by orange-red crescents.

Wings, long (membrane reaching base of tube) but narrow, almost uniformly brown in color.

MALE. Similar to female but usually smaller and abdomen much more slender, usually somewhat darker. Legs more slender. Fore tarsal tooth no larger than in female. Eyes somewhat larger, showing six or seven facets in lateral outline.

Measurements: (Average of ten males). Total body length .95 mm. Head, length .14 mm., width .12 mm.; prothorax, length .09, width (including coxae) .21 mm.; pterothorax, width .18 mm.; abdomen, greatest width .24 mm.; tube, length .096 mm., width at base .05 mm., at apex .028 mm. Antennal segments, length (width) in microns, I, 28 (32); II, 40 (25); III, 59 (24); IV, 51 (22); V, 46 (21); VI, 44 (20); VII, 36 (18); VIII, 33 (11). Total length .33 mm.

NYMPHS. Pale straw yellow in color with much hypodermal pigment, purple by transmitted, yellow by reflected light. In the nymphs of *G. reticulatus* the pigment is bright red.

Antennal segment I is concolorous with the head; II to VII progressively darker; VI and VII grayish-brown. II is oval in outline; III to VI top-shaped, pedicelled; VII club-shaped, pedicelled, and about as long as VI. The nymph of *G. reticulatus* of corresponding length is considerably darker, light brownish gray. Antennal segment II is colorless in apical .4. Antennal segments III to V cup-shaped, not pedicelled. VI nearly square in outline. VII conical, longer than V and VI together, broadly joined to VI.

Described from several hundred apterous females and a single winged one, and many males. This is a common species in moulding leaves on the forest floor. Next to *Trichothrips pergandei* Hood it is usually the most common thrips in such situations. First collected at Gainesville, Fla., by Marston Bates, after whom the species is named. Collected from many localities in Florida, as far south as Mulberry in Polk Co., in the Cherokee National Forest in northern Georgia, and in the Great Smoky National Park near Elkmount, Tenn.

Glyptothrips eddeyi n. sp.

APTEROUS FEMALE. Body color brown (weathered oak—Maerz and Paul, 1930, Plate 8, L. 11) head and first four antennal segments lighter, legs amber yellow. Body length about 1.1 mm. (varying from .81 mm. to 1.4 mm.)

Head about as wide as long, frons rounded, projecting but little in front of the eyes; cheeks slightly rounded; dorsum with very weak reticulation, usually visible only on the sides and near posterior margin. Postocular bristles very long (93 microns in the type), pointed. A pair of conspicuous bristles situated posterior to the postocular and a third of the distance to the posterior margin of the head. Eyes small, showing 4 or 5 facets in lateral outline, ocelli lacking. Cheeks sharply constricted behind the eyes but eyes not so markedly bulging as in the other species. Mouth cone broadly rounded, reaching about half way across the prosternum. Antennae about 2.5 times as long as the head, first four or five segments concolorous with or a little lighter than the head, last three or four rather abruptly darker (weathered oak). Segment 2 cup-shaped, 3 top-shaped, 4 nearly spherical (except for the pedicel), 5-7 oval in outline, 8 conical, all with broad pedicels. Sense cones long and heavy but colorless, bristles also colorless.

Prothorax about twice as wide as long, bristles on posterior angles long (outer about 116 microns), pointed. Legs rather slender and weak. Fore tarsus unarmed.

Bristles on the 9th segment of the abdomen longer than the tube. Tube about as long as the head and about half as wide at the base; lighter distally; terminal bristles shorter than the tube.

Measurements: (Average of type and 9 paratypes). Total body length 1.1 (from .8 to 1.4). Head, length .13 mm.; width .134 mm. Prothorax, length .12 mm., width (including coxae) .23 mm. Mesothorax, greatest width .21 mm. Abdomen, greatest width .27 mm. Tube length .133 mm., width at base .068 mm., at apex .035 mm. Antennal segments, length (width) I, 42.5 (37); II, 43.8 (32); III, 52 (34); IV, 46 (35); V, 45 (32); VI, 43 (28); VII, 41 (26); VIII, 35 (16) microns. Total length .34 mm.

APTEROUS MALE. Similar to female but decidedly smaller, and body darker in color, especially the abdomen. Fore femora not enlarged, fore tarsus unarmed.

Measurements of type: Total body length .64 mm. Head, length .106 mm., width .116 mm. Prothorax, length .119 mm., width (including coxae) .22 mm. Mesothorax, greatest width .21 mm. Abdomen, greatest width .21 mm. Tube, length .117 mm., width at base .069 mm., at apex .032 mm. Antennal segments, length (width) I, 35 (38); II, 35 (30); III, 44 (31); IV, 40 (33); V, 40 (28); VI, 40 (25); VII, 37 (23); VIII, 35 (14) microns. Total length .275 mm.

Described from eighty females and two males taken from clumps of broom sedge (*Andropogon*) at Clemson College, S. C. (first collected by Dr. C. O. Eddy, after whom the species is named), also by O. L. Cartwright and J. C. Watts; near Asheville, N. C. (Arthur Jacot, collector); at Gainesville, Fla., by the author; from a "swamp grass", Clemson College, S. C. (C. L. Cartwright); bluegrass, Walhalla, S. C. (J. C. Watts);—November to February.

Glyptothrips flavescens Hood

The male of this species seems never to have been described. The writer has in his possession a single male collected at Ames, Ia., Nov. 14, 1932 by Floyd Andre.

APTEROUS MALE. Identical with the female in color but appreciably smaller.

Measurements: Total body length 1.3 mm. Head, length .16 mm., width .17 mm. Prothorax, length .105, width (including coxae) .245 mm. Mesothorax, greatest width .26 mm. Abdomen, greatest width (at segment 2), .32 mm. Tube, length .14 mm., width at base .06 mm., at apex .028.

Antennal segments, length (width): I, 47 (37); II, 51 (37); III, 49 (31); IV, 46 (34); V, 47 (32); VI, 42 (28); VII, 69 (23) microns. Total length .35 mm.

The following key will aid in the separation of the five species:

a. Antennae 7-segmented, color almost uniformly brown; pterothorax much wider than prothorax.....*flavescens* Hood

aa. Antennae 8-segmented; pterothorax but little or no wider than prothorax; at least partly yellow or yellowish brown.

b. Tube half as wide as head, heavy and ribbed, body bristles long and slender, those at posterior angles of prothorax nearly as long as prothorax.....*barythripoides*

bb. Tube not half as wide as head, not ribbed or especially heavy.

c. Intermediate antennal segments abruptly contracted to long, slender pedicels; postoculars short, barely reaching the eyes, or entirely lacking; entire head heavily reticulated .....*reticulatus*

cc. Intermediate antennal segments gradually contracted to short pedicels; postoculars conspicuous.

d. Postoculars robust and capitate, reaching about the anterior margins of the eyes; vertex faintly but evidently reticulated.....*batsei*

dd. Postoculars slender, reaching far beyond the eyes, pointed; reticulations evident only on sides of head and near the posterior margin.....*eddeyi*

ALLOTHRIPS

Two species of this genus occur in the geenton, but in different habitats.

A. megacephalus Hood

This species was described from specimens taken under bark of various trees. The writer has taken 42 females and 28 males from (in order of abundance) Tillandsia sp. on tree trunks, Spanish moss, "boots" of leaves on palm trees, dry leaves on

ground (3 specimens), bark of pecan trees, lichens, Jew's ear fungus; at Gainesville, Astatula, Quincy and Citra, Fla.

A. nubillicauda n. sp.

APTEROUS FEMALE. General body color brownish yellow, abdomen darker, especially the posterior segments. Antennal segments 4-7 and often 3 abruptly brown, 1 often shaded with brown. Posterior one-sixth of tube abruptly brown.

Head considerably longer than wide, widest in posterior half, cheeks strongly arched; faintly reticulated, provided with few or many thick, short, knobbed, colorless bristles (a few such bristles occur on the femora of *A. megacephalus* but not on the cheeks). Postocular bristles nearly as long as the eyes, stout but colorless, strongly capitate. Dorsum smooth. Eyes small, composed of only a few large facets; ocelli absent. Mouth cone broadly rounded, reaching nearly to mesosternum. Antennae nearly one and a half times as long as head. Segment II cup-shaped; III top-shaped; IV-VI roughly spherical, except for the wide pedicels and prolonged on ventral side; VII conical.

Prothorax considerably shorter than head and (including coxae) about twice as wide as long. A short, thick, capitate, colorless bristle on each posterior angle and a much shorter one on each anterior angle.

Pterothorax considerably narrower than the prothorax; sides nearly straight. Legs rather slender. Fore tarsus unarmed.

Abdomen thick and heavy. Bristles few and short, those on segment 9 about two-thirds as long as tube. Tube short and wide; terminal bristles scarcely as long as the tube.

Measurements: Total body length 1.4 mm. (varying from 1.13 mm. to 1.6 mm.). Head, length .24 mm., width .195 mm.; prothorax, length .15 mm., width (including coxae) .32 mm.; pterothorax .28 mm.; abdomen, greatest width .41 mm. Tube, length .14 mm., width at base .08 mm., at apex .04 mm. Antennal segments, length (width): I, 44 (47); II, 58 (39); III, 59.5 (37); IV, 46 (39); V, 45.5 (35); VI, 44 (33); VII, 66 (28) microns. Total length .34 mm.

MALE. Very similar to the female in coloration but considerably smaller, especially the abdomen. Fore femora considerably enlarged and fore tarsus armed. This tooth varies considerably in size, slightly curved.

Measurements: Total body length 1.04 mm.; head, length .20 mm., width .156 mm.; prothorax, length .115 mm., width (including coxae) .25 mm.; pterothorax, width .22 mm., abdomen, greatest width .27 mm.; tube, length .14 mm., width at base .06 mm., at apex .03 mm. Antennal segments, length (width): I, 44 (41); II, 52 (34); III, 55 (34); IV, 43 (36); V, 41 (34); VI, 42 (31); VII, 62 (28). In lateral profile segments IV, V, and VI are 48, 46 and 44 microns respectively in length. Total length .29 mm.

Described from about two hundred males and females taken at Gainesville, Mayo, Ft. White, Monticello, Micanopy, Perry, Quincy, Astatula, and Lower Matecumbe Key (G. F. Weber), Fla., and at Birmingham, Ala. (H. E. Bratley), all from moulding leaves on the forest floor except a few from Spanish moss. Taken during all months of the year.

This is distinctly an inhabitant of moulding leaves on the forest floor, very distinct from the preceding species, in ecologi-

cal distribution, which is distinctly an inhabitant of the bark of trees and epiphytes growing on tree trunks.

Easily told from *A. megacephalus* by the much lighter color, longer and differently shaped head and the coloration of the tube. That of *megacephalus* is sometimes clouded apically but the cloud lacks the definite boundaries of this species and is not nearly as dark.

TRICHOTHRIPS

T. pergandei Hood

This is by far the most common species in moulding leaves on the forest floor. Over two hundred individuals have been taken in a half bushel of such leaves. It has been taken in practically all stations where such material has been collected thruout the northern half of Florida but has not been taken south of Polk County. Also taken at Asheville and Bent Creek, N. C. (Arthur Jacot, Coll.), Elkmount and Gatlinburg, Tenn., Petersburg, Va. (J. W. Kea, Coll.), Clemson College, S. C. (J. C. Watts, Coll.). A few have been taken in woody fungi (*Polyporus versicolor,* Lentinus), in epiphytes on tree trunks, and a single specimen in a morning glory blossom at Pigeon Forge, Tenn. It occurs in very dry situations, as in pine needles, but is scarce in low, wet woods. It has been taken during all months of the year but, like all the species of the geenton, is relatively scarce at the close of the rainy season.

T. anomocerus Hood

This species, like the last, seems to be primarily associated with moulding leaves, both deciduous and pine. Also on Reindeer moss, Tillandsia, Broomsedge, Indian Pipe (A. N. Tissot); also taken on sedges in a clearing, and on wild onions at Clemson College, S. C. (J. C. Watts, Coll.); Alachua, Liberty, Marion, Lake and Taylor Counties, Fla.; Clayton, Ga.

T. bratleyi n. sp.

MACROPTEROUS FEMALE. Length 1.4 mm. to 2.5 mm. the difference largely in the length of the abdomen. Color, light brown by reflected light, brownish yellow by transmitted light, with much hypodermal pigment, purple by transmitted light, orange by reflected. All tibiae, tarsi and the first three antennal segments clear lemon yellow; tube brass yellow (Maers & Paul, Plate II, L, 6) with a sharply defined brown apex.

Head about a third longer than wide. Cheeks either straight or concave, either parallel or converging (sharply so in two females) posteriorly but abruptly widened at base, rounded in front but broadly acuminate between the bases of the antennae, vertex smooth, postocular bristles long and slender, reaching beyond the anterior border of the eyes, capitate,

colorless. Eyes rather large, black by transmitted light, red by reflected; facets very small. Ocelli large, sub-approximate, bordered by wide, reddish brown crescents. Labrum broadly rounded, much exceeded by the labium which reaches the mesosternum. Antennae about 1.6 times as long as head. Segments 1-3 light lemon yellow; 4 darker yellow shaded with brown apically; 5-8 olive wood brown (Maers & Paul, Pl. 15, E, 10), 5 paler at base. First two segments unusually narrow, 3-5 club-shaped, 6 oblong, 7 and 8 closely united into a conical mass but suture plainly evident, oblique, 7 pedicellate. Sense cones and spines long and slender but colorless.

Prothorax only about half as long as head, a long slender capitate, colorless bristle at each posterior angle.

Legs rather short, fore tarsus with a sharp, curved tooth.

Wings well developed, membrane reaching the base of the tube, provided with a conspicuous brown band below the middle and a brown patch at extreme base, with six or seven interlocated hairs on the posterior margin of anterior wings.

Tube rather long and slender, sides sinuate in outline; terminal bristles nearly as long as tube.

Measurements: Head, length .33 mm., greatest width (behind eyes) .25 mm.; prothorax, length .16 mm., width (including coxae) .38 mm.; pterothorax, width .38 mm.; abdomen, greatest width .42 mm., tube, length .20 mm., width at base .093 mm., at apex .042 mm. Antennal segments, length (width) in microns: I, 45 (47); II, 69 (37); III, 96 (40); IV, 92 (40); V, 66 (33); VI, 61 (35); VII & VIII, 85 (28). Total length .54 mm.

APTEROUS FEMALE. Similar to macropterous female in color but one much darker with antennal segments 1 & 2 yellowish brown; shorter, from 1.4 to 1.9 mm. in length. Cheeks straight and parallel. Eyes small, showing about 3 large facets in lateral outline. Ocelli present, (in one female only the anterior ocellus is present). Labium scarcely reaches the posterior border of labrum.

Measurements of type: Head, length .25 mm., width .22 mm.; prothorax, length .17 mm., width (including coxae) .38 mm.; pterothorax, width .33 mm.; abdomen, greatest width .47 mm.; tube, length .19 mm., width at base .10 mm., at apex .038 mm. Antennal segments, length (width) in microns: I, 51 (48); II, 63 (40); III, 85 (42); IV, 77 (42); V, 68 (36); VI, 65 (35); VII & VIII, 83 (32). Total length .50 mm.

(To be continued)

Printing for All Purposes
Carefully Executed
Delivered on Time
Pepper Printing Company
Gainesville, Florida

DUST WITH DERRIS
OR
PYRETHRUM

Control Aphids, Cabbage Worms, Leaf Hoppers, Cucumber Beetles, Asparagus Beetles, Squash Bugs and many other insects on vegetable crops.

Eliminates residue problem on leafy vegetables particularly.

ORDER FROM YOUR SUPPLY HOUSE

McCormick & Co., Inc.

LIQUID AND DUST PYRETHRUM AND DERRIS INSECTICIDES

McCORMICK BLDG. - - BALTIMORE, MD.

KALO

NON-ARSENICAL INSECTICIDES FOR SAFER, BETTER RESULTS

KALITE The quick-killing dust, ready to use, for most chewing insects, such as beetles and worms, contains a special prepared fluosilicate which gives dependable insect toxicity, exceptional plant tolerance, covering and adhesive qualities, with economy.

KALO SPRAY (Kaolith) The only sodium fluoaluminate specially prepared for insecticide purposes. Used as a wet spray to replace arsenic for most purposes on fruits and vegetables, or for home-mixed dusts. Contains no sodium sulphate or uncombined sodium or aluminum fluorides.

BOTH KALITE AND KALO SPRAY ELIMINATE ARSENICAL RESIDUE

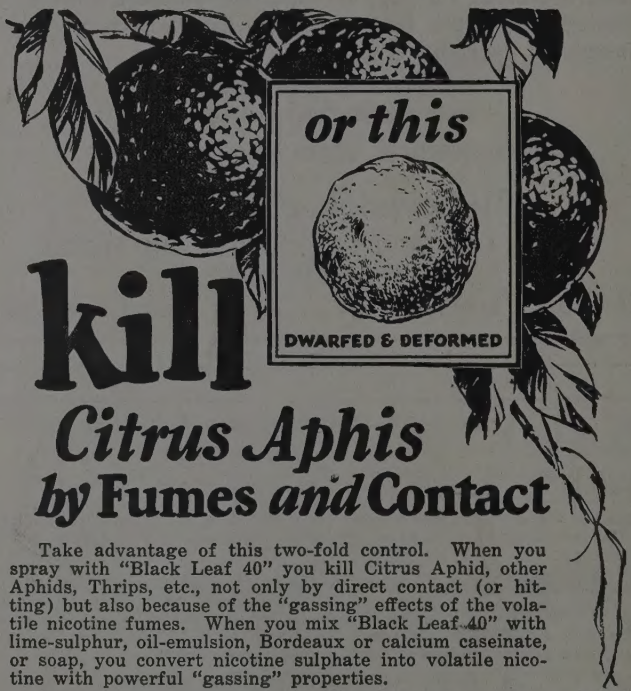
KALOIL Self spreading free flowing energized pyrethrum spray. Needs no soap, and contains none. Mixes readily with any water. Economical for commercial use.

THE KALO COMPANY
Quincy, Illinois

We recommend the goods advertised in The Florida Entomologist. Please mention Entomologist when you write our advertisers.

USE "BLACK LEAF 40"

It Gives You Extra Insurance Against Aphis.



kill *Citrus Aphis* *by* Fumes *and* Contact

Take advantage of this two-fold control. When you spray with "Black Leaf 40" you kill Citrus Aphid, other Aphids, Thrips, etc., not only by direct contact (or hitting) but also because of the "gassing" effects of the volatile nicotine fumes. When you mix "Black Leaf 40" with lime-sulphur, oil-emulsion, Bordeaux or calcium caseinate, or soap, you convert nicotine sulphate into volatile nicotine with powerful "gassing" properties.

Likewise, when you dust with Nicotine Dust, insects are killed by actual contact of the dust with their bodies and also by the powerful nicotine gas.

"ASK YOUR EXPERIMENT STATION"

TOBACCO BY-PRODUCTS & CHEMICAL CORP.

LOUISVILLE, KENTUCKY
(Incorporated)

Kills Aphis

"Black Leaf 40"
40% Nicotine